



APPENDIX C
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ALL PENDING CLAIMS AS AMENDED

1 2. (Twice amended) A device for the trenchless replacement of in-situ pipe, comprising:
2 a mole;
3 a length of cable, said cable being engagable to said mole;
4 a cable pulling device being releasably engagable to said cable;
5 a cable pulling device mounting frame being releasably engagable to said cable pulling device;
6 and
7 wherein said cable pulling device includes at least one pair of cable engaging collets that
8 function to engage said cable on a said pulling stroke and to release said cable on a said recovery
9 stroke; and
10 wherein at least one further pair of collets is provided that function to engage said cable on said
11 recovery stroke and release said cable on said pulling stroke.

1 6. (Once amended) A device as described in claim 2 wherein said further pair of collets is
2 engaged within said cable pulling device.

1 7. (Once amended) A device as described in claim 6 wherein said cable pulling device is
2 formed with a slotted cable insertion means for the sideways insertion of said cable within said
3 cable pulling device.

1 11. (Twice amended) A device for the trenchless replacement of in-situ pipe, comprising:
2 a mole;
3 a length of cable, said cable being engagable to said mole;
4 a cable pulling device being releasably engagable to said cable;
5 a cable pulling device mounting frame being releasably engagable to said cable pulling device;

6 wherein said mole includes a nose portion being engagable to said cable, a tapered body portion
7 and a replacement pipe engagement portion, said mole further including at least one blade, said
8 tapered body portion acting to initially contact, fracture and expand said pipe for the replacement
9 thereof with a length of replacement pipe, and said blade acting to cut pipe engagement devices
10 encountered by said mole after said pipe has been expanded by said tapered body portion.

1 12. (Twice amended) A device as described in claim 2 wherein said cable pulling device is a
2 post tensioning ram (PTR), and wherein the weight to pulling force ratio of the PTR is in the
3 range of 2 pounds of weight per ton (2,000 pounds) of pulling force.

1 13. (Once amended) A device as in claim 12 wherein the PTR provides a pulling power
2 through the use of hydraulic pressure in the range of 5,500 to 20,000 PSIG.

1 15. (Twice amended) A device for the trenchless replacement of in-situ pipe, comprising:
2 a mole;
3 a length of cable, said cable being engagable to said mole;
4 a cable pulling device;
5 a cable pulling device mounting frame being releasably engagable to said cable pulling device
6 wherein said cable pulling device mounting frame includes an annulus member including a cable
7 passage bore formed therethrough and a cable insertion slot formed through portions of said
8 annulus member for the sideways insertion of said cable within said cable passage bore of said
9 annulus member. and
10 wherein said annulus member includes a cable pulling device engagement portion for releasably
11 engaging a portion of said cable pulling device.

1 16. (Twice amended) A device as described in claim 15 wherein said cable pulling device
2 mounting frame includes a reaction plate having an enlarged surface for disbursing a reaction
3 force against a cable pulling force generated by said cable pulling device.

1 17. (Once amended) A device as described in claim 16 wherein said annulus member is
2 mountable in relation to said reaction plate such that said reaction plate disburses cable pulling
3 forces exerted on said annulus by said cable pulling device.

1 18. (Once amended) A device as described in claim 17 wherein said cable pulling device
2 includes a mounting nose piece, and said annulus member includes a bore that is disposed to
3 receive said nose piece therewithin.

1 19. (Once amended) A device as described in claim 18, wherein said mounting nose piece
2 includes a cable mounting slot for the sideways insertion of said cable within said nose piece,
3 whereby said slot in said nose piece may be aligned with said slot in said annulus member for the
4 sideways mounting of said cable within said annulus member and said nose piece, and wherein
5 said cable pulling device and said nose piece can be turned 90° to capture said cable within said
6 annulus member and said nose piece.

1 20. (Twice amended) A device as described in claim 15 wherein said cable pulling frame
2 includes a plurality of frame members and a rotatable cable pulley being mounted to said frame
3 members.

1 21. (Once amended) A device as described in claim 20 wherein said frame members are
2 disposed to provide a cable mounting gap that allows said frame to be mounted to a side of said
3 cable.

1 22. (Once amended) A device as described in claim 20 wherein said frame members are
2 disposed to provide a cable engagement path in relation to said frame, such that a side portion of
3 said cable can be mounted within said cable pulling frame and around said pulley.

1 23. (Once amended) A device as described in claim 22 wherein said frame includes a
2 plurality of leg members that are engaged at an inner end thereof to a base member, and said leg
3 members are engaged at an outer end thereof to further frame members that engage said pulley.

1 24. A device as described in claim 21 wherein said frame members are shaped as plates.

1 25. (Twice amended) A device as described in claim 15 wherein said mole includes a nose
2 portion being engagable to said cable, a tapered body portion and a replacement pipe
3 engagement portion, said mole further including at least one blade, said tapered body portion
4 acting to initially contact, fracture and expand said pipe for the replacement thereof with a length
5 of replacement pipe, and said blade acting to cut pipe engagement devices encountered by said
6 mole after said pipe has been expanded by said tapered body portion.

1 27. (Twice amended) A device for the trenchless replacement of in-situ pipe, comprising:
2 a mole;
3 a length of cable, said cable being engagable to said mole;

4 a cable pulling device including a cable engagement mechanism and a cable pulling device
5 engagement means functioning to provide a mounting structure for said cable pulling device;
6 said cable pulling device engagement means further including a reaction plate having an
7 enlarged surface for disbursing a reaction force against a cable pulling force generated by said
8 cable pulling device;
9 a cable pulling frame, said cable pulling frame being mountable to said reaction plate and said
10 cable pulling device being mountable to said cable pulling frame; and
11 wherein said cable engagement mechanism includes at least one pair of cable engaging collets
12 that function to engage said cable on a said pulling stroke and to release said cable on a said
13 recovery stroke, and at least one further pair of collets that function to engage said cable on said
14 recovery stroke and to release said cable on said pulling stroke, and wherein said cable pulling
15 device is formed with a slotted cable insertion structure for the sideways insertion of said cable
16 within said cable pulling device.

1 28. (Once amended) A device as described in claim 27 wherein said cable pulling frame
2 includes a plurality of frame members and a rotatable cable pulley being mounted to said frame
3 members; and wherein said frame members are disposed to provide a cable engagement path in
4 relation to said frame, such that said cable can be sideways mounted within said cable pulling
5 frame and around said pulley and into said cable pulling device.

1 29. (Once amended) A device as described in claim 28 wherein said mole includes a nose
2 portion being engagable to said cable, a tapered body portion and a replacement pipe
3 engagement portion, said mole further including at least one blade, said tapered body portion
4 acting to initially contact, fracture and expand said pipe for the replacement thereof with a length
5 of replacement pipe, and said blade acting to cut pipe engagement devices encountered by said
6 mole after said pipe has been expanded by said tapered body portion.

1 31. (Twice amended) A mole for use in the trenchless replacement of in-situ pipe,
2 comprising, a nose portion being engagable to a cable, a tapered body portion and a replacement
3 pipe engagement portion, the mole further including at least one blade, said tapered body portion
4 acting to initially contact, fracture and expand said in-situ pipe for the replacement thereof with a
5 length of replacement pipe, and said blade acting to cut pipe engagement devices encountered by
6 the mole after said pipe has been expanded by said tapered body portion; and
7 wherein said blade includes a relatively thin portion that is disposable within said tapered body
8 portion of the mole and an expanded portion that projects from said tapered body portion of the
9 mole.

1 32. (Twice amended) A mole for use in the trenchless replacement of in-situ pipe,
2 comprising, a nose portion being engagable to a cable, a tapered body portion and a replacement
3 pipe engagement portion, the mole further including at least one blade, said tapered body portion
4 acting to initially contact, fracture and expand said in-situ pipe for the replacement thereof with a
5 length of replacement pipe, and said blade acting to cut pipe engagement devices encountered by
6 the mole after said pipe has been expanded by said tapered body portion; and
7 wherein said blade is disposed within a slot formed in the mole, and wherein a rearward edge of
8 said blade is formed with an angle of approximately 80° with respect to a bottom edge of said
9 blade, and wherein said slot is formed with a shape that corresponds to said angle, such that said
10 blade is held within said slot.

1 35. (Twice amended) A mole for use in the trenchless replacement of in-situ pipe,
2 comprising, a nose portion being engagable to a cable, a tapered body portion and a replacement
3 pipe engagement portion, the mole further including at least one blade, said tapered body portion
4 acting to initially contact, fracture and expand said in-situ pipe for the replacement thereof with a
5 length of replacement pipe, and said blade acting to cut pipe engagement devices encountered by
6 the mole after said pipe has been expanded by said tapered body portion;

7 a replacement pipe engagement sleeve member for the engagement of said replacement pipe with
8 the mole, said sleeve member being formed with cylindrical sidewalls and an internal radially
9 projecting wall portion having a bore formed therethrough;
10 and wherein the mole is formed with a rearwardly projecting threaded portion that projects
11 through said bore, such that a threaded nut may be threadably engaged thereto to secure said
12 sleeve upon the mole;
13 said sleeve further being adapted for the thermal pressure bonding of said replacement pipe
14 thereto.

1 46. (Twice amended) A method for the trenchless replacement of in-situ pipe, comprising the
2 steps of:
3 exposing a first end of said pipe;
4 exposing a second end of said pipe;
5 disposing a pulling cable through said pipe between said first end and said second end;
6 engaging a mole to said cable at said first end;
7 engaging a cable pulling device to said cable at said second end; and
8 installing a reaction plate at said second end,
9 pulling said mole through said pipe utilizing said cable pulling device; and
10 including the further steps of engaging said cable with a first pair of collets on a cable pulling
11 stroke of said cable pulling device, and engaging said cable with a second pair of collets on a
12 recovery stroke of said cable pulling device.

1 47. (Twice amended) A method as described in claim 46 wherein said cable pulling device is
2 a post tensioning ram (PTR).

1 48. (Once amended) A cable pulling device, comprising:

2 a first structural frame portion including at least two hydraulic cylinders, and a first pair
3 of cable engaging collets that are engaged with said first structural portion and disposed to
4 frictionally engage a portion of a cable that passes within said first pair of collets;

5 a second structural frame portion being movably engaged with said first structural frame
6 portion, and a second pair of collets that are engaged with said second structural frame portion
7 and disposed to frictionally engage a portion of said cable that passes within said second pair of
8 collets.

1 49. (Once amended) A cable pulling device as described in claim 49 wherein a piston rod
2 member projects from each of said at least two hydraulic cylinders, and wherein said second
3 structural frame portion is fixedly engaged to said piston rod members; and

4 wherein said hydraulic cylinders are operable to cause said first structural frame portion
5 and said second structural frame portion to separate and to come together in a reciprocating
6 manner; and

7 wherein said first pair of collets is disposed to engage said cable when said first structural
8 frame portion is separating from said second structural frame portion, and wherein said second
9 pair of collets is disposed to engage said cable when said first structural frame portion is coming
10 together with said second structural frame portion.